

REMARKS

Initially, applicant would like to thank Examiner Rodriguez for the helpful and courteous telephonic interviews he conducted with one of applicant's representatives on 31 October 2005 and 4 November 2005, in conjunction with the present application and the Office Action of 9 August 2005. As discussed during the interview of 31 October 2005, applicant sent an informal draft of proposed claim amendments to Examiner Rodriguez via fax on 1 November 2005, for his review. Subsequently, during follow up interview on 4 November 2005, Examiner Rodriguez indicated that he had reviewed the draft of claim amendments, and that pending further review, he felt that the limitations, particularly that of claims 1-12, contained in the enclosed draft amendment should patentably distinguish over the art. Applicant thanks the Examiners for reviewing the draft amendment, and for the courtesy extended in these telephone interviews.

Upon entry of the present amendment, Amendment-A, claims 1-20 will remain pending in the present application, of which claims 1, 16, and 17 are independent. New claims 13-20 have been added to further define additional aspects of the invention.

The above-identified Office Action has been reviewed, the applied references carefully considered, and the Examiner's comments carefully weighed. In view thereof, the present Amendment-A is submitted. It is contended that by the present amendment, all bases of rejection set forth in the Office Action have been traversed and overcome. Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

Amendments

In the interest of expediting prosecution of the application, applicant has amended claims 1, 2 and 6 by the present amendment.

Claim 1 has been amended to further and more particularly define the subject matter which applicant regards as the present invention. Particularly, claim 1 has been amended herein to further define that the dry multiple-disk clutch comprises strap plates disposed between peripheral parts of the outer clutch member and peripheral parts of the driving friction disks, and connecting the respective peripheral parts of the outer clutch member and the driving friction disks, wherein said peripheral parts of the adjoining driving friction disks are disposed at different peripheral positions to prevent the strap plates connected to the adjoining driving friction disks from extending in a same angular region around the transmission input shaft.

Claim 2 has been amended to further define the outer clutch having a means for pressing the driving friction disks and the driven friction disks against each other.

Claim 6 has been amended to further define the outer clutch member has external projections at said peripheral parts thereof, respectively, studs are attached to the external projections of the outer clutch member, respectively, and each of the strap plates has one end attached to a corresponding one of the external projections of the pressure member, and the other end fitted on a stud attached to a corresponding one of the external projections of the outer clutch member, said external projections of the pressure member being at peripheral positions different from peripheral positions of said peripheral parts of a driving disk disposed nearest to the pressure member.

Applicant respectfully submits that the above amendments are fully supported by the original disclosure including drawings. For example, in relation to claims 1 and 6, as shown in Figs. 11 and 12 and detailed in paragraph 0039 of the specification of the present application, the externally threaded part of the second collar stud 12 screwed in the threaded hole 10d has a length longer than that of the externally threaded inner part of the first collar stud 11 screwed in

the threaded hole 10.

New dependent claims 13-15 define further aspects of claim 1.

New independent claims 16 and 17 are similar to claim 1, except that in claim 16, operating the drive shaft drags the driving friction disks and the pressure member through the strap plates thereby rotating the driving friction disks and the pressure member together with the outer clutch member, thus preventing air gaps therebetween and further preventing hitting sounds; and in claim 17, a vibration control mechanism disposed on surface of the driven friction disk interposed between the outer clutch member and the driving friction, are added to define additional aspects of the claimed invention. New dependent claims 18-20 define further aspects of the vibration control mechanism of claim 17.

Applicant respectfully submits that these new claims are fully supported by the original disclosure (specification, paragraphs 0044, and Figs. 11-14). For example, in relation to claim 16, paragraph 0044 of the specification discloses that: the two driving friction disks 13 and the single pressure member 14 of the dry multiple-disk clutch 1 are connected to the outer clutch member 10 by the strap plates 26. Therefore, the rotating outer clutch member 10 drags the driving friction disks 13 and the pressure member 14 through the strap plates 26 and, consequently, the driving friction disks 13 and the pressure member 14 rotate together with the outer clutch member 10. Since there are not any gaps corresponding to the gaps between the external teeth of the driving friction disks and edges of the parts of the side wall of the outer clutch member defining the slots in the conventional dry multiple-disk clutch, the dry multiple-disk clutch 1 in the first embodiment does not generate any hitting sounds. Thus, the dry multiple-disk clutch 1 operates silently.

Accordingly, applicant respectfully submits that the above amendments are fully

supported by the original disclosure including drawings, and that no new matter is introduced into the application by the above amendments, and respectfully requests that the rejection be reconsidered and withdrawn.

Also, applicant respectfully submits that the new claims 13-20 are fully supported by the original disclosure including drawings, and that no new matter is introduced into the application by these new claims.

Claim Rejections - 35 USC §102 (b)

In the Office Action, the Examiner provides a very brief rejection of claims 1-6 and 12 under 35 USC §102(b) as allegedly anticipated by Mahoney (US 5,950,786), although the anticipation rejection includes a reference to a second patent by Mahoney (US 4,977,991).

In his rejection, the Examiner states that Mahoney discloses a dry multiple-disk clutch for transmitting power from a drive shaft 14 to a transmission input shaft 18, comprising an outer clutch member 40, 50, 58, 58a, 59, a plurality of driving friction disk 70 (second disk not shown – see 4,977,991 upon which '786 improves), a pressure chamber 60, 66, 110, elastic strap plates 90, 100 with ends, external projections 62, 82, and studs 93, 103.

Applicant's Response:

Upon careful consideration and in light of the above amendments, applicant respectfully submits that the rejection is overcome, and claim 1-6 and 12 are patentably distinct over the disclosure of Mahoney for several reasons, including those given below.

For example, initially, applicant respectfully suggests that the Examiner's reference to a second patent is improper because (1) it violates the basic requirement for anticipation under 35 USC §102, i.e., that all elements of a claimed invention must be disclosed in a single reference;

and (2) the clutch structures disclosed in the two patents are not the same, such that it is improper for the Examiner to assert that the clutch in the '786 patent includes a second driven friction disk simply because the clutch in the '991 patent includes a second driven friction disk. There is no disclosure in the '786 patent indicating that the clutch disclosed therein has multiple driven friction disks, nor is any such structure inherent from the disclosure of the '786 patent.

Even a rejection under 35 USC §103(a) based on an alleged combination of the two patents would be improper because the '786 patent is intended to overcome disadvantages of the clutch in the '991 patent, and to achieve better clutch engagement/disengagement than is possible with the clutch of the '991 patent that includes multiple driven friction disks, such that it would not be obvious to include features of the '991 clutch in the '786 clutch.

Further, the '786 patent also fails to disclose the disposition of strap plates as defined at the last clause of claim 1, i.e., strap plates disposed between a peripheral part of the outer clutch member and peripheral parts of the driving friction disks, and connecting the respective peripheral parts of the outer clutch member and the driving friction disks. Particularly, in the '786 patent clutch, strap plates (90, 100) are not disposed between a peripheral part of the outer clutch member (second plate 50) and peripheral parts of the driving friction disks (first and second driving plates 60, 80). Rather, strap plates 90 are disposed between the first driving disk 60 and a first plate 40 (disposed adjacent to the pressure member 110), while strap plates 100 are disposed between the second driving disk 80 and the driven plate 70, as shown in Figs. 2-5 of the '786 patent.

Also, while attaching bolts 56 for the strap plates 90, 100 may be threadedly engaged with the clutch outer member (second plate 50), the bolts 56 are engaged with *radially*

intermediate parts of the member 50, not with peripheral part thereof. Applicant also notes that a primary purpose of the strap plates in the '786 patent is to reduce wear of dowel shaped members 66 on first driving disk 60, which is contrary to the claimed invention.

In this regard, the Examiner asserts that the outer clutch member of the '786 patent clutch includes multiple components 40, 50, 58, 58a, 59. Applicant respectfully traverses such assertion because it is based on unreasonable interpretation of the claim terms. These several components are separate members (plural), not a single member, while first plate 40 is an inner clutch member, not an outer clutch member.

With reference to dependent claims 2-6 and 12, applicant respectfully submits that these claims are further patentably distinct over the applied references because Mahoney (the '786 and '991 patents) also fails to disclose several features of these dependent claims.

For example, although, Mahoney discloses first and second driving disks 60, 80 having tabs 62, 82 and strap plates 90, 100, he fails to disclose each outer clutch member and pressure member having external projections, particularly as required by claims 2 and 6. It is not clear from the Examiner's brief rejection, but it appears that his position relating to the features of claims 2 and 6 may be tied to his unreasonable interpretation of an outer clutch member as including the multiple plates 40, 50 and other components.

Further, Mahoney fails to disclose: strap plates disposed between respective peripheral parts of the outer clutch member and the pressure member, and connecting the outer clutch member and the pressure member, as recited in claim 4; or that the strap plates connected to the pressure member are substantially tangent to the circumference of the pressure member, as required by claim 5.

Additionally, in order to expedite the prosecution of the application, applicant has

amended claims 1, 2 and 6, as discussed hereinabove.

For example, the claim 1 has been amended to include that said peripheral parts of the adjoining driving friction disks are disposed at different peripheral positions to prevent the strap plates connected to the adjoining driving friction disks from extending in a same angular region around the transmission input shaft. This is very advantageous because it permits the claimed dry multiple-disk clutch to be compact. Consequently, the torque capacity of the multiple-disk clutch is increased without enlarging bulk (size) of the clutch while any hitting and or striking sound are reduced due the arrangement of strap plates, as claimed.

In claim 2, as amended, the added feature – said outer clutch having a means for pressing the driving friction disks and the driven friction disks against each other – is advantageous over conventional clutches because the provision of the external projections on the outer clutch member for attaching the strap plates enables reduction in number of components required for producing a multiple-disk clutch, for example, the claimed multiple-disk clutch.

Such advantageous features added by the present amendment to claims 1, 2 and 6 are not taught by the references of record, either considered singly or in combination.

For all of the foregoing reasons, applicant requests consideration and withdrawal of the rejection of claim 1-6 and 12 under 35 USC § 102(b).

Claim Rejections - 35 USC §103 (a)

In the Office Action, claims 7-8 and 11 are rejected under 35 USC §103(a) as being unpatentable over Mahoney '786 in view of Gonia et al. (5,727,665); and claims 8-10 are rejected under 35 USC §103(a) as being unpatentable over Mahoney '786 in view of Alas et al.

(4,714,148).

In his rejection of claims 7-8 and 11, the Examiner states that Mahoney does not show vibration control means or the specifics of the flywheel, however, providing elastic means on outer clutch members is conventional in the clutch art. The Examiner further states that Gonia et al. disclose an outer clutch member 12 having a vibration control element 46 or cone spring and a control plate 40, and therefore, it would have been obvious to a person of ordinary skill in the art at the time invention was made to provide a vibration control element as taught by Gonia et al. in the device of Mahoney to dampen vibration and improve the progressiveness of the clutch engagement.

Applicant's Response:

Upon careful consideration, applicant respectfully traverses such rejections and submits that each of claims 7-11 is clearly patentably distinct over the disclosure of Mahoney in view of Gonia et al. and Alas et al. for reasons given below.

Initially, applicant notes that the rejection of claims 7-11 is unfounded for those reasons discussed above in relation to claim 1, which are not overcome by any additional teachings of Gonia et al. or Alas et al.

Further, the Examiner's proposed modifications of the '786 patent to include select features of the Gonia et al. and Alas et al. references is improperly based on suggestions coming entirely from the Examiner (guided by impermissible hindsight of applicant's disclosure), rather than on any teaching or suggestion which may be fairly gleaned from the actual disclosures of the references.

For example, the clutch of the '786 patent does not include a driven friction disk adjacent to the second plate (outer clutch member) 50, but in direct contrast includes the second

driving disk 80 adjacent to the outer member clutch 50. As such it is impossible to include the features of Gonia et al. or Alas et al. in the '786 patent clutch without violating or destroying the actual disclosure of the '786 patent.

Thus, the Examiner fails to establish *prima facie* obviousness for rejection of claims 7-11, and therefore, these claims are also believed to be patentably distinct over the applied references.

For all of the foregoing reasons, applicant requests consideration and withdrawal of the rejection of claims 7-11 under USC § 103(a).

Other Matters

The additional references cited by the Examiner on the form PTO-892 included with the Office Action, US Patents 2,630,199 to Gamble, 5,383,544 to Patel, 6,732,846 to Diemer et al. 6,866,132 to Gochenour et al. and 6,892,870 to Peterseim et al. have been considered by applicant. However, it is respectfully submitted that these additional references fail to overcome the deficiencies of the Mahoney, Gonia et al. and Alas et al. references as discussed in relation to claims 1-12, hereinabove.

New claims 13-20 are believed to be patentably distinct over disclosures of the references of record based on the foregoing arguments relating to claim 1, and based on the merits of the additional features set forth in these new claims.

Conclusion

In conclusion, applicant has overcome the Examiner's rejections as presented in the Office Action; and moreover, applicant has considered all of the references of record, and it is

respectfully submitted that the invention as defined by each of present claims 1-20 is patentably distinct thereover.

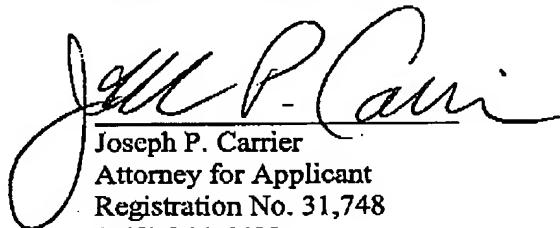
Applicant respectfully submits that all of the above amendments are fully supported by the original application. Applicant also respectfully submits that the above amendments and new claims do not introduce any new matter into the application.

The application is now believed to be in condition for allowance, and a notice to this effect is earnestly solicited.

If the Examiner is not fully convinced of all of the claims now in the application, applicant respectfully requests that he telephonically contact applicant's undersigned representative to expeditiously resolve prosecution of the application.

Favorable reconsideration is respectfully requested.

Respectfully submitted,



Joseph P. Carrier
Attorney for Applicant
Registration No. 31,748
(248) 344-4422

Carrier, Blackman & Associates, P.C.
24101 Novi Road, Suite 100
Novi, Michigan 48375
7 November 2005

CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that this correspondence is being transmitted via facsimile to the US Patent & Trademark Office, Art Unit 3681, on 7 November 2005.



Dated: 7 November 2005
JPC/fs